What Is Claimed Is:

1. A lightweight fuel tank comprising:

an outer spherical shell member;

a second inner spherical shell member positioned inside said outer shell member;

an inner shell member and said outer shell member being positioned to provide an insulating radial gap between them;

said inner shell member having an outer surface and an inner surface, said outer surface being coated with a low emissivity material; and

said outer shell member having an outer surface and an inner surface, said inner surface being coated with a low emissivity material.

2. The light weight fuel tank as set forth in claim 1 further comprising a first heating mechanism on said outer shell member for controlling the rate of evaporation of hydrogen material contained in said inner shell member.

3. The light weight fuel tank as set forth in claim 1 comprising a second heating mechanism on said outer surface of said outer shell member for controlling icing of said fuel tank during use.

4. The light weight fuel tank as set forth in claim 1 wherein said outer shell member is a sandwich construction employing low heat conducting skin and core materials.

5. The light weight fuel tank as set forth in claim 1 wherein said inner shell member is made of an aluminum material and said outer shell member is made of a sandwich of titanium, Kevlar and Nomex materials.

6. The light weight fuel tank as set forth in claim 1 wherein said low emissivity material is a flash of a copper material.

7. The light weight fuel tank as set forth in claim 1 further comprising a first port member in said outer shell member for evacuation of said radial gap to a vacuum, and provide access for filling said inner shell member with hydrogen material.

8. The light weight fuel tank as set forth in claim 1 further comprising a second port member in said inner shell member for filling said inner shell member with a hydrogen material, said second port member having a valve mechanism.

9. The light weight fuel tank as set forth in claim 1 further comprising a third port member in said inner shell member, said third port member having a valve mechanism.

10. The light weight fuel tank as set forth in claim 1 wherein said inner and outer shell members are connected at three locations, namely two opposing equatorial external support positions and a port member.

11. The light weight fuel tank as set forth in claim 10 wherein said inner and outer shell members of different materials are connected by a friction welded insert member.